Polystyrene Fact Sheet

What is Polystyrene?

Polystyrene is a plastic commonly used to make containers and lids for food and beverage. Polystyrene can come in a variety of forms ranging from foam products, often referred to as "Styrofoam," to a thin and rigid plastic, as seen with coffee cup lids. Polystyrene products are often labeled with the #6 plastic icon as shown below.

There are four general categories of containers impacted by this ban:

1. Lids and cups,
2. "Clamshell" style take-out containers,
3. Meat, poultry, and fish packaging, and
4. Polystyrene rigid clear plastic containers (commonly used to package sushi).

Check with your supplier to find out if the containers you currently provide are made from polystyrene and if they sell an acceptable non-polystyrene alternative.

Why Ban Polystyrene?

Polystyrene has a history of environmental problems. The foam form formerly used chlorofluorocarbons (CFCs) as a blowing agent. CFCs deplete the planet's protective ozone layer. Most CFCs have been removed worldwide following local and then national bans in the late 1980s. Modern bans on polystyrene food items that address current problems have been put in place all over the world: in major cities such as Oakland, San Francisco, and New York City; and countries such as China, India, and Taiwan. Currently, 31 Communities in Massachusetts have passed Polystyrene Bans and there is current legislation working through the Senate and House of Representatives for State-Wide Bans on the use of polystyrene food containers. Some of the top concerns regarding the use of Polystyrene include but are not limited to the following:

- Polystyrene, also known as "Styrofoam", a trademarked brand owned by the Dow Chemical Company, is made from a synthetic compound called Styrene which is reasonably anticipated to be a human carcinogen. [i] Styrene exposure can occur through smoking, inhalation of indoor air, and ingestion of food. [ii] Styrene seeps out of polystyrene containers and into warm food and drink, causing a recommendation against microwaving polystyrene food containers [iii] In a study concerning the migration of styrene in polystyrene cups to hot drinks, it was determined that the concentration of styrene monomer found in the drinks was above the Environmental Protection Agency recommended levels, including the Maximum Contaminant Level Goal (MCLG) standard. [iv] Furthermore, Benzene, a component of polystyrene is a known carcinogen and enters the body through the respiratory system and skin contact. [v]

- Polystyrene food items are a major litter problem. The foam form is very light so that, even when properly disposed of, they often blow away. Polystyrene foam easily breaks down into small pieces that can escape from the garbage truck. Landfill, boat and average consumer's hands- and are then carried into lakes and waterways, and eventually into the ocean. Polystyrene items make up the fifth through seventh largest type of litter from land-based sources found on U.S. coasts.[vi]
- Polystyrene items harm wildlife. The foam form in particular is often mistaken as food by both domesticated and wild animals.[vii] [viii] Birds may also use foam for nesting material. [ix] In 2006, the United Nations Environment Program estimated every square mile there was 46,000 pieces of floating Styrofoam in the oceans that can kill all kinds of birds and fish. A Californian case study showed that 162 marine species, mostly seabirds, were reported to have eaten Styrofoam and other plastics.
- Polystyrene does not biodegrade and although they do fragment through mechanical action and photodegradation in the presence of light, these processes are slow and take an estimated 200+ years to complete. When a polystyrene item kills an animal, the item may go on to kill again. When polystyrene items finally do break down, they do not dissolve into benign substances: they just fracture into smaller and smaller bits called "microplastics." These small particles present the greatest long-term danger, as these particles displace food supplies in the world's oceans. Once microplastics enter our oceans, they will stay there virtually forever, because they persist and their removal is not possible.
- Polystyrene is almost never recycled due to its low value. [x]

What Are the Acceptable Alternatives to Polystyrene?

1. Plastics with the #1 Resin Code (PETE-polyethylene)
2. Plastics with the #5 Resin Code (PP-polypropylene)
3. Plastics with the #7 Resin Code (other/mixed plastics)
4. Paper/Cardboard products
5. Aluminum Containers (lids must be foil or acceptable plastic, not polystyrene)
6. Biodegradable and/or compostable containers

Acceptable alternatives often have one of the resin code icons below printed on the side or bottom of the container.

Who Sells Acceptable Alternatives?

The following list of available alternatives to Foam Food Containers in no way constitutes or implies an endorsement, recommendation, or favoring by the Town of Monson of any vendor or product included. This list is updated regularly and any vendor wishing to have their products included may send their information in the appropriate format to boh@monson-ma.gov to be included in the list.

1. Tri Mark United East: Their line of Bio-Plus Earth products is certified by the Green Restaurant Council (800-556-7338)
2. Amazon.com
3. Biomasspackaging: food trays, deli/takeout containers, cups, lids
4. Hubert: Compostable foam meat trays
5. Pactiv: Corn based compostable meat tray packing
6. Eco-Products: cups, lids, takeout containers
7. US Eco Products: takeout containers
8. Dart: cups, lids, containers
9. Vegware: plant base cups, lids, containers
10. Restaurant Depot: takeout containers, cups, lids

When Does the Regulation Take Effect?

The Board of Health will hold a public forum at their meeting on Wednesday, February 27, 2019 to which they will invite businesses in town who they believe may be impacted by the passing of the Polystyrene Ban. The Board will schedule to vote on the ban at their following meeting, Wednesday, March 13, 2019.

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[i] National Toxicology Program, (NTP) (2011), *12th Report on Carcinogens (RoC)* Substance Profile (Styrene). Retrieved from: http://ntp.niehs.nih.gov/pubhealth/roc/roc12/index.html

[ii] National Toxicology Program, (NTP) (2011), *12th Report on Carcinogens (RoC)* Substance Profile (Styrene). Retrieved from: http://ntp.niehs.nih.gov/pubhealth/roc/roc12/index.html

[iii] The Way to Go, (2008), *Polystyrene Fact Sheets.* Retrieved from: http://isites.harvard.edu/fs/docs/icb.topic967858.files/PolystyreneFactSheets.pdf

[iv] Informa Healthcare, (2009), *Toxicology Mechanisms and Methods* (Determination of migration monomer styrene from GPPS (general purpose polystyrene) and HIPS (high impact polystyrene) cups to hot drinks). Retrieved from: http://informahealthcare.com/doi/abs/10.1080/15376510802510299.

[v] The Way to Go, (2008), *Polystyrene Fact Sheets.* Retrieved from: http://isites.harvard.edu/fs/docs/icb.topic967858.files/PolystyreneFactSheets.pdf

[vi] Ocean Conservancy, "International Coastal Cleanup 2013 Report", p. 14 http://www.oceanconservancy.org/our-work/international-coastal-cleanup/2013-trash-free-seas-report.pdf

[vii] Olivia Feinstein* & Peter Hodum University of Puget Sound, Tacoma WA "Northern Fulmars (Fulmarus glacialis) as bio-indicators of endocrine disrupting plasticizers in the marine surface environment" http://soundideas.pugetsound.edu/cgi/viewcontent.cgi?article=1168&context=summer_research

[viii] http://www.backyardchickens.com/t/23861/chickens-are-eating-styrofoam-help

[ix] http://www.seaside-sun.com/news/local_news/seaside-feathers-ospreys-nest/article_18c80844-eace-11e0-b1a7- 001cc4c03286.html

[x] Only 0.2% of polystyrene food service packaging in California is recycled according to California Integrated Waste Management Board (December 2004), "Use and Disposal of Polystyrene in California: A Report to the California Legislature," Table 4, Page 14.